Epistemic Practices and Aesthetic Artifacts in Co-Development of Organizational Processes

Salmi, Anna
Aalto University School of Science
Aalto University School of Art, Design and Architecture
anna.salmi@aalto.fi

Pöyry-Lassila, Päivi
Aalto University School of Science
paivi.poyry-lassila@aalto.fi

Kronqvist, Juha
Aalto University School of Art, Design and Architecture
CICERO Learning Network
juha.kronqvist@aalto.fi

Submitted to the Sub-theme 09: Artifacts in Art, Design, and Organization

Abstract
This paper presents a case study focusing on the epistemic practices and artifacts in the context of co-developing organizational processes and practices. Our study is rooted in the practice-based perspective, and as theoretical lens we use concepts from the intersection of organizational and design studies and learning theories. We approach the phenomenon through empirically analyzing a ‘persona exercise’ conducted in a participatory design setting of co-developing an organization’s innovation capability in a series of facilitated workshops. Under special attention are the epistemic practices and aesthetic epistemic artifacts, namely persona posters that were collaboratively created and discussed in the workshops. Traditionally, personas have been used in the design process as signifiers of future users of the designed artifact. Here they were instead used as a way of exploring and developing distinct roles in the innovation process. Follow-up interviews indicated that the exercise was especially meaningful in redirecting the object of design activity from a process-orientation towards a human-centered stance. By constructing a physical artifact that was then further refined by designers, the exercise was
able to bridge the interests of two participating knowledge domains, company management and R&D employees. Our findings indicate that the aesthetic dimension in epistemic practices and artifacts in the context of co-creation is relevant and necessitates further research.

1. Introduction
This paper presents a case study focusing on the epistemic practices and artifacts in the context of co-developing and co-creating organizational processes. In the recent years, the epistemic practices and artifacts have raised interest in several fields of research, such as organization studies and learning sciences, each offering distinct viewpoints on the phenomenon. However, these studies have emphasized the rational, cognitive or social dimensions of the epistemic practices and artifacts, while, for example, the aesthetic dimensions have not been sufficiently explored. Because of its capability to take on a broad array of elements pertaining to human experience, including personal characteristics and predilections of people, multisensory knowledge, diverse modes of creating knowledge, different values, and views on symbols and practices, the aesthetic perspective provides an interesting way of expanding inquiry into organizational processes. Our case study focuses on both the role of epistemic artifacts, or boundary objects, and specifically on the role of aesthetic artifacts in the epistemic practices related to a specific practice of knowledge co-creation in the context of co-development of organizational processes.

We approach the phenomenon of epistemic practices and artifacts through empirically analyzing a specific practice ‘persona exercise’ conducted in a series of facilitated workshops. Under special attention in this practice are the epistemic practices and aesthetic epistemic artifacts, namely persona posters that were collaboratively created and discussed in the workshops. Traditionally, personas have been used in the design process as signifiers of future users, but here they were used for exploring distinct roles in the innovation process of an organization. The follow-up interviews conducted after the workshops indicate that personas were especially meaningful in redirecting the object of design activity from a process-orientation towards human-centeredness. By constructing a physical artifact that was then further refined by designers, the exercise was able to
bridge the interests of two participating knowledge domains, company management and R&D employees. This way the artifact was acting as a boundary object in the knowledge co-creation practice.

In our paper we will answer, based on our empirical case study, the following research questions related to epistemic practices and artifacts:

- How do boundary objects facilitate knowledge co-creation discussions in design-driven development of organizational practices?
- Especially, what is the role of aesthetic artifacts in initiating these knowledge co-creation discussions?

2. Theoretical background

In this paper we explore the role of objects and artifacts as part of epistemic practices aiming at collaborative new knowledge creation. We examine the co-creation process of these artifacts and related epistemic practices that enable aesthetic concerns to arise. Our research is multi-disciplinary combining researchers as well as theories and concepts from the intersection of organizational and design studies, and learning science. This way we aim to form a novel, holistic understanding of the phenomenon.

Our research is rooted in the practice-based perspective studying organizations and organizational knowledge (e.g. Gherardi 2001, Orlikowski 2002, Nicolini 2009, Nicolini 2011, Feldman & Orlikowski 2011). According to this perspective, knowledge is both situated in a practice and constructed socially; knowing is thus connected with doing in and through a practice. Here, the intersubjective processes of knowledge construction are of interest (Billet 2001). Furthermore, knowledge is ‘fabricated by situated practices’ in which different ways of representation are used. Here also materiality and artifacts play an important, double role: artifacts may be seen as materialization of knowledge or ideas, and at the same time they enable interpretive flexibility for these ideas or knowledge. (Gherardi 2001) Practice is also argued to entail specific knowledge labelled as ‘tacit’. Tacit knowledge is often seen to be central for knowledge creation, especially through the process of knowledge conversion where tacit and explicit knowledge interact with each other. (Nonaka & von Krogh 2009)
To sum up, practice can be seen as the site of knowing, and knowing is ‘repeatedly produced in and through social practices’. This kind of emergent, processual knowing needs to be studied through carefully analyzing a real-life practice in the field, to find out what really happens in it. (Feldman & Orlikowski 2011, Nicolini 2011, Barley & Kunda 2001) Furthermore, by switching theoretical lenses through which the practice is studied it becomes possible to ‘zoom in and out’ of the practice; this enables to form a more comprehensive understanding of the practice studied (Nicolini 2009). In our study, we analyze a real-life practice through multiple and partly overlapping theoretical lenses, and by doing so we aim to form a novel and extended understanding of the practice. Feldman and Orlikowski (2011) define three ways of studying practice: choosing an empirical, theoretical, or philosophical focus. Our study uses an empirical focus to find out how people act and interact in the workshop’s context and what the practice actually entails. In addition, we use a theoretical focus to look for an explanation for the activities taking place in the specific practice studied.

In our case study we adopt a ‘practice lens’ (Orlikowski 2000) for studying the epistemic practices and artifacts. Thus, we focus on the co-development workshop participants’ actions and interactions, and how the artifacts, or boundary objects were used in these actions and interactions. More specifically, we focus on the epistemic practices (Knorr-Cetina 1999, 2001, Hakkarainen 2009), i.e. the practices related to knowledge and its creation during and through the discussions and other interactions, and how the personas acting as epistemic artifacts, or boundary objects, were used in these discussions and interactions. We study the practices at two levels: the epistemic practices taking place in the interactions between individuals participating in the workshops, and the innovation-related practices in the organization.

We ground the exploration of the role of objects and artifacts as part of epistemic practices in the philosophical tradition of phenomenology and specifically in the idea of embodiment (Lakoff and Johnson 1999, Dourish 2001). Embodiment refers to the interconnectedness of the human body, the object world and mental processes. According to the theory of embodiment thinking is bound to the features of the world and knowledge is created in an interaction with the environment, other people and surrounding objects. The embodied approach takes on a holistic view of human as a bodily, multisensory, so-
cial being embedded in the physical world, interpreting and making meaning of experiences and sharing them with others. In this paper our examination focuses on the aesthetic aspects of collaborative knowledge creation. Embodiment and aesthetics are closely related fields of study. In both of their view knowledge creation is rooted in the body. In our paper we explore how the personas emerged as a result of the participants’ embodied activity, what kind of aesthetic processes enabled the bringing forth of the personas and also, what kind of aesthetic understanding was formed through the creation of the personas.

**Epistemic practices in knowledge co-creation**

According to the practice-based view, knowledge or knowing is by nature a social process or an ongoing accomplishment and enacted or produced and re-produced in the everyday practices (e.g. Feldman & Orlikowski 2011). In our research we adopted also a complementary view according to which the collaborative creation of new knowledge takes place through *collective epistemic practices* “that guide and channel the participants’ intellectual efforts in creative and expansive ways”. This process is characterized by both deliberate advancement of the existing practices and systematic pursuit of new knowledge exceeding the current expertise. (Hakkarainen 2009) The group’s *epistemic agency* emerges through participation in the shared activities, i.e. intentionally pursuing its epistemic goals (Paavola & Hakkarainen 2005).

Furthermore, Tsoukas (2009) argues that knowledge is created in ‘conversational interactions’ (dialogue), but not enough is known about the artifacts mediating this interaction. Adding on to this dialogical approach of knowledge creation, we see knowledge co-creation as a *trialogical* process of learning (Paavola & Hakkarainen 2005). In trialogical interaction knowledge is created in collaboration, within a group with the help of shared objects, by collaboratively developing them further. This way knowledge co-creation is *mediated* by the objects or artifacts (Paavola & Hakkarainen 2005), and knowledge creation has a *material* basis through the mediating objects or artefacts (Hakkarainen 2009, Gherardi 2001, Nicolini 2011).

This material basis concurs with the pragmatist view of the emergence of meaning, which builds on the basis of the unity of body-mind and dismissal of the separation of
thinking and doing. All thinking is embodied and essentially connected through senses to our acting in the world. Conceptualizing is a way of responding to encountered problems, adapting to new situations and changing the environment we inhabit. However, these concepts are not disembodied, but grounded in perception and bodily experience. The more a concept is abstracted, the further it is away from the flow of perception and thus losing connection with the specific qualities of things. (Johnson 2007.) From the connection of perception and meaning follows the importance of a wide understanding of knowledge-creation as an aesthetic activity and their close connection with the artifacts humans interact with.

**Epistemic artifacts and objects**

Different artifacts and objects have raised interest in the fields of design, art, knowledge creation, and organizational studies, and various conceptualizations have been made from these diverse perspectives, e.g. evocative objects (Turkle 2007), expressive objects (Dewey 1934), analogous artifacts (Barry & Meisiek 2010), epistemic objects or representational artefacts (Miettinen & Virkkunen 2005), and boundary objects (Carlile 2002). In our study we recognize the conceptual diversity, and we use the term ‘boundary object’ when we refer to the various artifacts playing a central role in knowledge co-creation practices.

Boundary objects have been defined as “objects that are both plastic enough to adapt to the local needs and constraints of the several parties employing them, yet robust enough to maintain a common identity across sites” (Star & Griesemer 1989). Boundary objects enable transferring, translating, and transforming knowledge between people across different knowledge boundaries (Carlile 2004). Boundary objects offer through their interpretive flexibility a shared space of co-operation for, e.g., groups without consensus coming from different backgrounds. Thus, the boundary object ‘resides between social worlds’ and enables the groups to work on the object also locally. (Star 2010)

Furthermore, boundary objects and visual representations serving as *epistemic objects* can be used for both sharing knowledge and developing it collaboratively (Ewenstein & Whyte 2009, Hakkarainen et. al. 2004). Thus, boundary objects enable collaboration between diverse participants by providing a context with shared objects to discuss and
elaborate on. Essentially, boundary objects help to transcend individual thinking and support collaborative interaction (Arias et.al. 2000). Boundary objects can be understood as 'shared design objects' (Lahti et.al. 2004) enabling participation in co-creation activities, and they can be used as triggers enabling the participants to form a shared understanding through the interaction emerging around the object (Fischer & Ostwald 2003). Thus, boundaries and boundary objects entail rich opportunities for learning and knowledge co-creation (Akkerman & Bakker 2011) by acting as intermediaries for the individuals participating in the practice (Nicolini 2011). All in all, in our view the activities of individuals participating in a practice are mediated through the boundary objects.

The theories of analogous artifacts (Barry & Meisiek 2010), epistemic objects or representational artefacts (Miettinen & Virkkunen 2005) and boundary objects (Carlile 2002) look at artifacts from diverse points of views, such as knowledge creation and sharing, nonetheless they do not pay specific attention to their aesthetic features. However, Turkle’s (2007) concept of evocative objects as well as Dewey’s (1934) concept of expressive object touch on the aesthetic aspects of objects. The aesthetic connection arises through a link to emotion and perception. Turkle’s evocative object refers to objects that “incite self-reflection” through their capacity to evoke emotions (Turkle 2005). Evocative objects become emotionally meaningful through their power to fuel thinking and conversely, emotionally stimulating objects inspire thinking (Turkle 2007). Dewey approaches the topic of aesthetics through art. In Dewey’s thinking expressive object or artwork is brought forth by an artist who in an act of creation connects his prior emotionally charged experience with a scene or vision transforming it into an artwork, and thus enables new aesthetic experiences to arise. In these emerging experiences the prior emotions felt by the artist are fused and transformed into something new in the perceiv-er’s view. (Dewey, 1934) Even though both Turkle’s and Dewey’s theories are sensitive to the aesthetic aspects of artifacts they do not explicitly consider their capability in facilitating social processes of knowledge creation. Therefore, in our paper we aim to elaborate the aesthetic aspect of artifacts, which are explicitly created for sharing and building knowledge collaboratively.
Aesthetics as a way in creating knowledge
Aesthetics is the field of study of sensuous knowing (Taylor, 2009). This knowing is bound to subjective experience, e.g. to sentience, emotions, intuition, imagination and empathy (Weick, 2007, p. 15). The term aiesthesis comes from Greek and refers to sensing and perceiving, thus connecting the study of aesthetics to sensority and corporeality (Naukkarinen, 2005 & 2012). Through the attention paid on sensority, aesthetics highlights the importance of ways of knowing that are parallel to intellectual, conceptual, rational and analytic modes of knowing (Strati 2000).

The aesthetic view to meaning-creation challenges objectivist views of knowing by stressing human experience as the root of all abstract thought. This does not imply that higher abstractions are less important, indeed they are the basis of our ability of creating and changing our environments, but it reminds us that human experience is never separated from thought (Johnson 2007). Even the more abstract concepts, such as freedom, strategy or cause lose their meaning if they are separated from the felt experience.

Strategy, for example, derives (one of) its meanings from the means of coordinating movements of a group of people in a direction. Thus, even though organizational or strategic decision-making might be perceived as the meeting of minds, their connection to practical activities can be traced back to our body and senses.

In his account of aesthetic approach in organization studies Strati (2000) elaborates the connections between aesthetics, art and emotion. Despite their apparent linkage he emphasizes their difference. In separating artistic and aesthetic understanding he gives an illustrative example of how an organizational researcher may create rich aesthetic knowledge of an organization’s situation by employing e.g. his sense of smell. Strati describes how the feeling of repulsion felt by a researcher because of odour smelled in a workshop yields important information about the meaning of that particular smell in the organization. These experiences might also bring out possible objects for further inquiry. (p. 17) In Strati’s view aesthetic understanding does not require artistic ability or art philosophical knowledge.

In the human composition sensing is connected to emotions, as can be noted in Strati’s (2000) example of employing the sense of smell in research. In simplified terms emo-
tions are aroused as a result of sensory excitation, which is also the starting point of aesthetic understanding. In organizational research through aesthetic approach emotions experienced either by the researcher, organizational participants or both, provide important pathways to the layers of experience of the organizational participants. As signs of emotional behavior, in the data collected, the researcher might observe e.g. blushed faces, errors in articulation, loud speech, frenzied movement, interruptions, long silences and turned away gazes. These events reveal personal experiences, expectations, efforts, beliefs, wishes, appreciations and restraints that are valuable material for inquiry on the organization through an aesthetic approach.

Strati (2000) points out that the interactions between organizational actors and organization scholars produces knowledge that is not entirely verbal, nor articulable. This process of knowledge creation employs “the network of the sensory and perceptive faculties of both” (p.14). Visual and gestural languages and intuitive and evocative knowledge-creating processes come to play. This becomes evident when considering organizational practices that are laden with tacit knowledge (e.g. Nonaka & von Krogh 2009) that are easily dismissed when relying on a discursive process. The embodied nature of these practices defy rational articulation of their nature and requires a different approach. The practice-based view enables taking into consideration also the emotional dimension in addition to the cognitive, as well as mental and sensory perceptions (Gherardi 2001). Furthermore, practice, spatiality, affectivity and emotion has been studied (Simonsen 2007), but the aesthetic dimension seems yet to be explored.

In this case study our approach to the study of the target organization is design-oriented and in the analysis of the epistemic practices in the workshop we adopt a point of view that derives from pragmatist aesthetics. The practice of design draws from ways of knowing that are essentially embodied and aesthetic (Kimbell 2009). Design objects come to be through a process in which creators direct their sensitive, emotion-laden perceptions of the world towards transformation of materials. The activity of design is a dynamic, social, interactive and iterative process in which each unfolding decision is informed by previous choices made and evaluation of what will be possible next. The bodily manipulation of material, be it concrete or immaterial, as well as the social interaction that centers around the activity, yields knowledge that guides the process further.
Thus the creators’ thinking process, the conversations around the object, the physical act of creation and the resulting object are inseparably coupled.

In the field of design the study of aesthetics has had a fertile ground. There is a rich tradition of analysing design objects through the meanings they evoke in their users. However, there is a lack of sources for studying the aesthetics of artifacts that are created collaboratively by participants in co-design workshops. Thus, through our research we aim to bridge a gap in knowledge about co-design as an aesthetic practice.

In the co-development encounters we operate through meanings that we assign to artifacts, inter/actions, events and processes. Meanings arise out of the body, but they are also emergent and social. For Dewey the unique, non-discursive, integrated, emotional side of meaning is just as important as the communicable, inter-related, discursive side. Yet, the former is notoriously hard to capture. However, as Dewey commented, though superior importance has been given to verbal communication for practical reasons, this should not be allowed to conceal the importance of other forms of expression. (Dewey 1934)

The challenge for the ways of working inclusive of the aesthetic perspective is to avoid reducing the collaborative process to the manipulation of “words”. The aesthetic aspects need to be communicated in their own language, yet in a way that can be understood in another social context, by people who lack the same tools and training for “reading” and “speaking” the language(s) of design.

**Research Project Context**

The study is part of a two-year action research project in which methods, practices and tools for virtual collaborative innovation were studied and developed in co-operation with company partners. The research was conducted in an organizational development setting in a large multi-national company aiming to develop its innovation processes with the help of a web-based idea collection and evaluation tool. The research project consisted of three phases (see Figure 1.).
The aim of the workshop series (see To-be way of doing in Figure 1.) was to establish a new, more evenly distributed way of innovating supported by an idea collection tool. At the time of the workshops, the tool was being piloted with some hundreds of users and had resulted in mixed feedback. While some employees welcomed a more open innovation process based on sharing ideas, some users felt that the system jeopardised the innovation assets through idea leaks to competitors. The workshops were organized to provide a space for negotiating contradictions and to establish a new work practice that embeds the new tool to established innovation practices.

The three workshops, themed People, Process and Tool, gathered ca. fifteen people consisting of employees of the organization, employees of small companies operating in the field of innovation and university researchers, to unpack ideas related to innovating and to develop ways of innovating further. In the first workshop the focus was on social interactions and relations that manifested both in the use of the system and in face-to-face innovation activities. The aim of the People workshop was to make the practices of collaborating more tangible. In the Process workshop we centered on the innovation process and specifically on the meanings that people assign to innovation in the company. Through metaphorical design approach we aspired to question the employees’ view...
of the organization’s innovation process. In the Tool workshop we focused on building scenarios of new ways of using the innovation system, as well as creating ideas of new tool functionalities.

3. Co-designing organizational practices with personas

Personas is a technique introduced by Cooper (1999) and utilized in the field of user-centered design. Personas are synthesized portrayals of people entailing characteristics of real people studied to create an understanding about the relevant user base. Personas are usually textual descriptions enhanced with visual images. They contain a demographic profile and information about the character’s behaviors, roles, goals, needs, frustrations, values and beliefs. The use of personas in design processes enhances reality and makes participants feel more engaged by making user profiles more identifiable for the people involved (Grudin and Pruitt 2002).

In this research we utilized the personas in two phases of the research process. This paper focuses on the latter, using personas as part of a series of co-design workshops. The first phase is reported in one of our previous research papers (Salmi et al. 2012). The persona exercise was designed to explore three roles assigned for innovators in the ICT-tool. The users were divided in three distinct, but partly overlapping roles: users, champions and owners. Roughly, the two latter ones were based on business management, working with screening and advancing ideas. The first one refers to users providing new ideas and commenting on existing ones. Based on interviews and an initial process workshop, we recognized the centrality of these roles in the organization’s process and practices. Our aim was to introduce personas as a tool for collaboratively redesigning these roles, and use them later in the design of innovation strategy and processes.

The creation of personas was a collaborative effort between the participants and the researchers which took place in the People and Process workshops. In the People workshop the participants’ task was to draft personas using poster paper, felt pens and pictures cut-out from magazines in the workshop. Before the making the researchers provided a brief introduction to the personas technique and presented a few pre-defined questions to guide the work. The participants co-created the personas through discussion in groups of three to five people. After the workshop the researchers created more
refined layouts of the drafts based on information gathered from the recordings of the groups’ conversation during the task. The modified personas were brought back to the participants in the following workshop for further discussion. In the Process workshop in the development of the personas we utilized a technique called ‘exhibition walk’ which is commonly used in pedagogical encounters. In an exhibition walk exercise the posters are hanged up on the wall and the participants walk in small groups from poster to poster discussing the contents of each poster with the support of a facilitator. The aim is to introduce the contents but also to question and to develop the presented ideas further. To record the new insights we used post-it notes alongside each poster.

4. Analysis/Findings
As we followed the practice-based view, we studied the practice in question through carefully analyzing what really happened during the workshops, both the epistemic practices and interactions, and the artefacts or boundary objects. Furthermore, by utilizing multiple theoretical lenses we intended to form a more comprehensive understanding of the practice studied. In addition, our study uses both an empirical focus (to find out how people act and interact in the workshop’s context and what the practice actually entails), and a theoretical focus to look for an explanation for the activities taking place in the workshops. In this section we provide a short overview of our findings.

Figures 2.–7. present how the persona artifacts evolved in the collaborative effort between the participants and the researchers. In the figures 2., 4. and 6. the pictures forming the visual basis of the personas have been highlighted with red circles. The participants used these pictures to bring up important aspects of the system roles in the discussion. The choosing of the pictures took place through participants’ aesthetic intuition during the groups’ conversations. After the workshop the researchers used their aesthetic sensitivity to amplify these meanings by emphasizing some of these chosen pictures. Not all ideas or pictures from the users’ original posters were included.

The future user persona (See Figure 3.) includes a picture of a person who lies in bed with only little clothes on, at a lake ice with no one else is around. Only the silhouette of the trees in the horizon demarcates the scene from the emptiness of the lake ice. There is an image of a wide-open eye overlaid on top of the sky, as if it was keeping watch on
the person in bed. The other picture that is enlarged in the persona poster represents the user in the participants' description. He is the voice of the silent experts: gray, quiet and invisible. Despite his inconspicuousness, he makes things work in the everyday life of the organization. We think that these visual meanings bring to light the participants' experience of being in the user role. Currently, the system does not feel alive to users, and lacks an atmosphere of free expression open to ideation. In the system there is a cautious, silent and empty atmosphere. The meanings link well with our findings presented in (Kronqvist et al. 2011).

![Figure 2](image2.png) **Figure 2. Participants’ persona of the future user. The significant scrap pictures are highlighted with red circles.**

![Figure 3](image3.png) **Figure 3. Future user persona refined by researchers (based on participants’ original).**

The to-be champion (see Figure 5.) includes a picture of a female who is smiling in a friendly manner and holding a coffee cup in her hands. She looks easy to approach and willing to interact. On the background there is a picture of a group of people discussing and working together with their computers. They look like they are having a good time together. It seems that the work is flowing for them. In this persona the designer chose to underline the collaborative aspects of working and the fluency of social interaction. The designer selected pictures that made visible that working on a computer and working with others can be combined to make work feel gratifying.

When collaboratively constructing personas with workshop participants, it is not an easy task for a designer to choose the material to focus on. For example in Figure 4., in the lower left corner there is a picture of a man walking at the roofs of high buildings in an urban landscape. The man is dressed up in fashionable, original looking clothes. He
looks like a courageous man who walks his own paths. This picture that represents an independent and creative person could equally well have been included in the persona. However, in this case the core idea would have been very different from the one that eventually ended up in the poster. Instead of highlighting the importance of social interaction and collaboration this picture would have emphasized originality, independence and solitary hard work.

Figure 4. The participants’ to-be champion persona poster.

Figure 5. The researchers’ version of the future champion.

The future owner persona (see Figure 7.) includes a picture of an angry looking person who is wearing a cap with a label stating “The Boss”. The person is depicted straight from the front and staring directly in the eyes of the viewer. The person in the picture has a wrinkly face and looks androgynous. At the background there is a picture of people climbing on the surface of a skyscraper. The people are in their office wear and the building looks like an office construction. Some of the people are using others as stepping stones in ascenting and others look like they are barely hanging on.

In the Process workshop, when we conducted a second round of personas development, we designers acting as facilitators diligently questioned the participants’ view of the future owner as an angry and difficult person who makes users to feel like they are involved in a survival struggle. For example, we asked if the owner should resemble more an angel investor, who spots talents and takes them under his wings to support, or Uncle Samuel, who controls through fear. Despite questioning, the participants held on to their idea that the owner needs to be a person who is not
necessarily liked, who sets limits and who takes care of the distribution of resources in a fair manner.

The exhibition walk exercise conducted in the Process workshop produced a rich collection of new insights concerning the wished for attributes of the system roles: users, champions and owners. The post-it notes that list the ideas for each role thrive with emotional vocabulary. In connection with the future user persona the participants talked e.g. about self-confidence, of being the “Gyro Gearloose” of the organization, courage to risk failure, frustration, fearlessness, motivation and commitment to work. Especially, representative of the participants’ wishes is the comment: “Not an army but a group.”

We think that this comment connects with the participants’ original idea of the army of silent experts in the sense, that they would want to be seen as a group of persons with common aspirations and not as a mass of people that is externally controlled and that does not have personality. The future owner stimulated comments about courageousness, credibility, trustworthiness, ability to see the big picture, situational sensitivity and ability to balance between being encouraging and critical. It is noteworthy that the participants did not list ideas related to authoritativeness and frightfulness in connection with the future owner persona, even though the picture material communicated these characteristics. The future champion was connected e.g. with inspiration, communication skills, capabilities in carrying responsibility, catalytic and mediating ability in social relations, having an eye for good ideas, interpretive ability for elaborating ideas and facilitative
ability to support shy idea creators. These meanings align with the mood of the future
champion persona poster.

In addition to the persona artifacts we use the participants’ group interview as our empirical data. Five company employees and two researchers participated in this follow-up interview that was carried out a year after the workshops. The audio-recorded discussion was transcribed into written format and analyzed with qualitative content analysis techniques.

In our analysis we paid attention to how the participants talked about their experiences concerning the personas exercise. One of the participants brought out that the personas made the future user visible in a process that is essentially about designing an ICT system. He thought that the exercise emphasized the importance of the human and his needs in relation to the tool.

“... The future user ought to be able to ideate easily and not in the way that the eagerness to innovate is dragged down by the fact that the system does not work ...”

Another participant working in a managerial role expressed that he has used the personas to communicate issues in the assignment of the system roles to the company top management.

“... Very little have I presented any reports to the executive group, except these personas ... As it was one A4 with a visualization of the person including his hoped-for attributes ... It has been a simple message that has worked well ...”

5. Conclusions and Discussion
In this paper, we aimed to answer two research questions related to epistemic practices and artifacts: (1) How boundary objects facilitate knowledge co-creation discussions, and (2) What is the role of aesthetic artifacts in these discussions. Firstly, the boundary objects used (personas) in the knowledge co-creation discussions offered the co-development workshop participants shared objects to talk about and think with, as they evoked and elicited ideas, offered means for negotiating differing viewpoints, and enabled formation of new, shared meanings. The boundary objects were mediating the dis-
cussions, and we argue that the discussions reached the trialogical level (cf. Paavola & Hakkarainen 2005) where the individuals participated in the collective pursuit of building new knowledge through co-developing the shared objects. Thus, the epistemic artifacts, or boundary objects formed the core of the epistemic practice studied, as the group’s epistemic agency emerged around the boundary objects; they both offered a shared context for the discussions, and served as catalysts and objects of co-creation. These findings are well aligned with the theory trialogical learning and knowledge co-creation (cf. Paavola & Hakkarainen 2005, Hakkarainen 2009), and with boundary objects literature (cf. Ewenstein & Whyte 2009, Arias et.al. 2000).

Secondly, we think that the way the personas exercise was constructed facilitated the raising of aspects of participants’ personal experience and tacit knowledge (c.f. Nonaka & von Krogh 2009) that would have otherwise remained hidden. Without the researchers’ special attention to the aesthetic aspects, e.g. the availability of the visual tools and the provision of the triggering questions addressing the human side, the discussion would have centered around improving the process and the tool. Through the personas exercise we managed to direct the dialogue from discussions about work tasks and functions towards dealing with issues in social interaction in innovation activities. The personas exercise facilitated the making visible of the subjective experience of the participants acting in different roles in the innovation system. From the post-it notes that the participants created in the round of personas elaboration it can be noted that the personas evoked emotional reflection that arised from the participants’ sensory experience: what they saw in the posters and how it resonated with their prior personal experience. The posters also elicited meanings that were of different mood than the persona poster itself, as happened in the case of the future owner persona.

Thirdly, by adopting a practice-based view in our study, and thus exploring a real-life practice (c.f. Feldman & Orlikowski 2011), we were able to grasp the authentic features of knowledge co-creation, or epistemic practice, and the central role of boundary objects and their specific features in this practice. We became to understand profoundly the material basis and mediated nature of the practice as well as the tight connectedness of practice and knowledge, or doing and knowing (c.f. Gherardi 2001, Orlikowski 2002, Nicolini 2009, Nicolini 2011, Feldman & Orlikowski 2011). In addition to what is already
known in extant research, we identified the significance of aesthetic dimension of boundary objects and knowledge/knowing. This came especially evident in our data analysis of the persona artifacts and the discussions around them. Through the collaborative creation of these objects the inarticulable found form and was given shape. We contend that without the carrying out of the personas exercise much of the aesthetic understanding of the participants concerning their experience of innovating in the organization would have remained hidden.

Based on our experiences in the workshop as well as the information gathered in the follow-up interviews we argue that the co-development of the personas artifacts served to expand the knowledge co-creation process from an intellectual activity towards a more embodied, sensory and experiential process. As a result, a more holistic understanding of the social interaction between the three system roles, was created.

Our study has also managerial implications: the assignment of roles was changed in the organization. This way our study acted as an intervention that reshaped the organizational innovation practices of the participating company.

This study contributes to the body of knowledge/theory of epistemic practices and artifacts and boundary objects by indicating that the aesthetic dimension in epistemic practices and artifacts necessitate closer investigation. The approach emphasizing the aesthetic aspects can bring new perspectives to the theory. In addition, part of our contribution is bringing together theories and concepts from several fields of research, and combining them to form a more holistic and coherent understanding on the phenomena at hand.

References


